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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,566

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EXAMINER

HUARACHA, WILLY W

ART UNIT

PAPER NUMBER

2196

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/594,566

Applicant(s)

GOLITSCHKE EDLER VON  
ELBWART ET AL.

Examiner

Willy W. Huaracha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/29/2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-32, 34-39 and 41-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-32, 34-39, 41-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 23-32, 34-39 and 41-45 are currently pending and have been examined.

### **Claim Rejections - 35 USC § 101**

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 37-39 and 41-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. As per claim 37, is directed to a scheduling apparatus. However, the recited components of the scheduling apparatus (e.g. a scheduling unit, checking unit, and releasing unit) appear to lack the necessary physical components (hardware) to constitute a machine or apparatus under 101 (spec. pages 3-5). Therefore, these claim limitations can be reasonably interpreted as being computer program modules or software per se and hence non-statutory. Applicant is advised to amend the claims to include hardware components (e.g. processor) to overcome the 101 rejection.

5. Claims 38-39, 41-45 are rejected for failing to cure the error of their respective parent claim.

### **Claim Rejections - 35 USC § 102**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 23-30, 36-37 and 41-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Klein (US Pub. No. 20040053574 A1).

8. Klein was cited in a previous office action.

9. As per claim 23, Klein teaches the invention as claimed including a method for performing a scheduling algorithm with minimum resource scheduling in a mobile communication system (fig. 1, wireless communication system 100; par. 0017, par. 0001), comprising:

10. scheduling allocation units for a user or service on a per-scheduling frame basis, wherein each scheduling frame comprises a plurality of allocation units (par. 0029, lines 1-4; and fig. 2, steps 214-224),

11. checking whether the allocation units that are scheduled for a the user or service in a current scheduling frame meet at least one resource constraint (par. 30, lines 1-5; and fig. 2, step 218),

12. releasing the allocation units that are scheduled for the user or service for said current scheduling frame in response to a result of checking whether the allocation units that are scheduled for the user or service in said current scheduling, frame meet the at least one resource constraint (par. 30, lines 1-9; fig. 2, step 220), and

13. re-scheduling the released allocation units in the current scheduling frame to at least one

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other user or service (par. 30; and fig. 2, 220-214, selected data handset is inhibited from transmission, and process returns to step 214 for rescheduling),

14. As per claim 24, Klein teaches wherein the scheduling comprises considering at least one of a channel condition parameter, an amount of data available for transmission to a specific user, a quality of service, a delay, a data rate and a carrier to interference ratio (par. 0017-0026, fig. 1).

15. As per claim 25, Klein teaches wherein the scheduling frame has at least one of a time division, frequency division or code division frame structure (par. 0020, 0029, channel is divided into plurality of time slots).

16. As per claim 26, Klein teaches wherein the at least one resource constraint is a user or service based requirement (par. 0030).

17. As per claim 27, Klein teaches wherein the at least one resource constraint is a scheduling frame based requirement (par. 0022).

18. As per claim 28, Klein teaches wherein the at least one resource constraint is defined based on a proportion of available scheduling frame resources (par. 0022; 0030).

19. As per claim 29, Klein teaches wherein the at least one resource constraint is represented by a minimum number of scheduled allocation units for the user or service (par. 0030).

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20. As per claim 30, Klein teaches wherein the allocation units have a quantity of one of transmittable information bits, Internet Protocol packets, code blocks or modulation symbols (par. 0004).

21. As per claim 36, Klein teaches wherein the checking and the releasing of the allocation units are carried out in a time sequential manner by the scheduling algorithm for all users or services (par. 0029-0030).

22. As per claim 37, it is a scheduling apparatus having similar limitations as claim 23. Thus, claim 37 is rejected for the same rationale as applied to claim 23.

23. As per claim 41, Klein teaches a base station comprising a scheduling apparatus scheduler (par. 0017; and fig. 1),

24. As per claim 42, Klein teaches mobile terminal comprising a scheduling apparatus scheduler (par. 0017; and fig. 1).

25. As per claim 43, Klein teaches a mobile communication system comprising a transmitter and a scheduling apparatus scheduler and a receiver, the receiver further comprising a processing unit for processing information on the result of the scheduling algorithm, and a control unit for shutting down at least part of the mobile communication system's receiving circuitry for the duration of a scheduling frame for which no allocation units are scheduled to the receiver (par. 0017-0026, fig. 1).

26. As per claim 43, Klein teaches a mobile communication system comprising a scheduling apparatus and a transmitter, the transmitter further comprising a processing unit for processing information on the result of the scheduling algorithm, and a control unit for shutting down at least part of the mobile communication system's transmitting circuitry for the duration of a scheduling time for which no allocation units are scheduled to the transmitter (par. 0017-0026, fig. 1).

### **Claim Rejections - 35 USC § 103**

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. Claims 34, 35 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein, as applied to claim 23, in view of Havinga et al. "Energy-efficient TDMA Medium Access Control Protocol Scheduling".

29. Havinga was cited in a previous office action.

30. As per claim 34, Klein does not specifically teach signaling to the user the result of the scheduling algorithm, including whether the allocation units are released. However, Havinga teaches signaling to the user the result of the scheduling algorithm (page 2, right column, last paragraph, and page 3, left column, paragraph 4). It would have been obvious to one of ordinary

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skill in the art at the time of the invention to have included mechanism for broadcasting schedules and results to a mobile such that the mobile can know when to receive or transmit.

31. As per claim 35, Havinga teaches wherein the signaling is transmitted on in an associated control channel (page 2, right column, last paragraph, and page 3, left column, paragraph 4).

32. As per claim 39, it is a scheduling apparatus having similar limitations as claim 34. Thus, claim 39 is rejected for the same rationale as applied to claim 34.

33. Claims 31, 32, 38 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein, as applied to claim 23.

34. As per claim 31, Klein teaches does not appear to teach checking whether at least one other resource constraint is not violated by releasing the allocation units, and releasing the allocation units that are scheduled for the user or service only if the at least one other resource constraint is not violated by such release. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expanded the teaching of Klein by including a mechanism for checking, before releasing allocation units, so as to insure that additional constraints are not violated and thereby optimizing scheduling in the wireless communication system.

35. As per claim 32, Klein teaches wherein the checking whether the at least one other constraint is violated comprises determining a quality of service parameter such as a maximum



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allowable delay or long-term data rate (par. 0002, 0024).

36. As per claim 38, it is a scheduling apparatus having similar limitations as claim 31. Thus, claim 38 is rejected for the same rationale as applied to claim 31.

37. As per claim 45, it is a scheduling apparatus having similar limitations as claim 38. Thus, claim 45 is rejected for the same rationale as applied to claim 38.

### **Response to Arguments**

38. Applicant's arguments filed 12/29/2010 have been fully considered but they are not persuasive.

(1) The applicant argues in page 14 that Klein fails to teach “checking whether the allocation units that are scheduled for the user or service in a current scheduling frame meet at least one resource constraint”.

(2) The applicant argues in page 14 that Klein fails to teach “releasing the allocation units that are scheduled for the user or service for said current scheduling frame ...”.

(3) The applicant argues in page 14 that Klein fails to teach the feature “re-scheduling the released allocation units in the current scheduling frame to at least one other user or service”.

As to point 1, the examiner respectfully submits that Klein teaches in fig. 2, steps 214-215, comparing channel gains of all data users and selecting a user with the best gain, this constitutes scheduling; then in step 218, at the time of transmission, comparison of the

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gain of the selected user is performed, which constitutes checking whether it meets resource constraints.

As to point 2, the examiner respectfully submits that Klein teaches in fig. 2, that the comparison in step 214 results in either meeting or not meeting the threshold.

Accordingly in step 220, based on determination that it does not meet the threshold; the user is inhibited from transmitting, and as a result it is evident that resources are freed for rescheduling in order to maximize the usage of resources.

As per point 3, the examiner respectfully submits that Klein teaches in fig. 2, after inhibiting the user from transmitting in step 220, process returns to step 214 and continues with scheduling at least one other user. This constitutes rescheduling.

### **Conclusion**

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 7,450,975 B2
- b. U.S. Patent No. 7,085,595 B2
- c. U.S. Patent No. 6,731,947 B2
- d. U.S. Patent No. 6,018,642 A
- e. U.S. Pub. No. 20020102982 A1

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is

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reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLY W HUARACHA whose telephone number is (571) 270-5510. The examiner can normally be reached on M-F 8:30am to 6:00pm, EST.

41. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emerson Puente can be reached on (571) 272-3652. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

42. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth Tang/ Primary Examiner, Art Unit 2196	/Willy W. Huaracha/ Examiner, Art Unit 2196
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